Customer No.: 31561
Application No.: 10/065,091
Docket No.: 5486-US-PA

## REMARKS

**Present Status of the Application**

The Office Action stated that the newly submitted claims 56-61 in previous response are withdrawn from consideration because claims 56-61 are directed to a non-elected invention. Moreover, the Office Action objected to the specification of the present invention and stated that the title of the invention is not descriptive. Further, the Office Action rejected claims 1-7, 9-10 and 12-13 under 35 U.S.C. 103(a), as being unpatentable over Nakamura et al. (U.S. Patent No. 5,691,791) in view of Nakai et al. (U.S. U.S. Patent No. 6,144,429). The Office Action also rejected claim 8 under under 35 U.S.C. 103(a), as being unpatentable over Nakamura et al. (U.S. Patent No. 5,691,791) and Nakai et al. (U.S. U.S. Patent No. 6,144,429) in view of Kim et al. (U.S. U.S. Patent No. 6,693,689). The Office Action further rejected claim 11 under under 35 U.S.C. 103(a), as being unpatentable over Nakamura et al. (U.S. Patent No. 5,691,791) and Nakai et al. (U.S. U.S. Patent No. 6,144,429) in view of Kubo et al. (U.S. U.S. Patent No. 6,819,379). Applicants have amended the title of the present invention and withdrawn claims 56-61 but respectfully submit that claims 56-61 define the same subject matter as what recited in claims 1-13. Furthermore, Applicants respectfully stated that claims 1-13 have already distinguished over the cited arts. After entry of the foregoing amendments, claims 1-13 remain pending in the present application, and reconsideration of those claims is respectfully requested.

**Discussion of Restriction Requirement**

The Office Action stated that the previously submitted claims 56-61 are directed to an invention that is independent or distinct from the invention originally claimed because claims 56-61 specify the LCD device comprising a transparent dielectric layer having a substantially planar upper surface.

Applicants respectfully traverse this indication. As shown in Fig. 2 of an embodiment corresponding to claims 1-13, the top surface of the transparent dielectric layer 84 is substantially flat. In claims 1-13, the way to express the characteristic of the transparent dielectric layer is to describe the structural relationship between the upper surface of the transparent dielectric layer and the bumpy surface of the organic insulating layer. That is, in claim 1, it is emphasized that the transparent dielectric layer has a smoother upper surface than the bumpy organic insulating layer. Similarly, in claim 56, the transparent dielectric layer having a substantially planar upper surface is used to clearly depict the shape of the transparent dielectric layer. On the other words, claim 56 is a narrow scope of claim 1 by limiting the shape of the top surface of the transparent dielectric layer.

As stated in MPEP Chapter 806.03, when the claims of an application define the same essential characteristics of a single disclosed embodiment of an invention, restriction therebetween should never be required. Claims 56-61 are basically directed to the subject matter as same as what recited in claims 1-13. That is, claims 56-61 and claims 1-13 are neither mutually exclusive, independent nor distinct from each other but vary only in breadth and scope. A restriction on the claims 56-61 is thus not proper.

Therefore, the consideration of claim 56-61 is respectfully requested.

**Discussion of Office Action Objection**

The Office Action objected to the specification of the present invention and stated that the title of the invention is not descriptive. The Office Action further stated that the title is required that is clearly indicative of the invention to which the claims are directed. In response thereto, Applicants have amended the title of the present invention to be "STRUCTURE FOR REFLECTIVE LIQUID CRYSTAL DISPLAY".

**Discussion of Office Action Rejections**

*The Office Action rejected claims 1-7, 9-10 and 12-13 under 35 U.S.C. 103(a), as being unpatentable over Nakamura et al. (U.S. Patent No. 5,691,791; hereafter Nakamura) in view of Nakai et al. (U.S. U.S. Patent No. 6,144,429; hereafter Nakai) and stated that the combination of the cited references can achieve the claimed features of the present invention.*

Applicants respectfully traverse this rejection and state that claim 1 has distinguished over the cited arts. As stated, claim1 recites:

> Claim 1. (currently amended) A liquid crystal display (LCD) structure, comprising a first substrate panel, a second substrate panel, and a liquid crystal layer disposed between the first substrate panel and the second substrate panel, a plurality of pixel portions being formed by respective electrodes for applying a voltage to the liquid crystal layer, each of the pixel portions comprising
>
> an organic insulating layer over the first substrate panel, wherein the surface of the organic insulating layer has a plurality of protrude/recess structures thereon;

a conformal reflective layer over the organic insulating layer, wherein the conformal reflective layer serves as a reflector of light;

a transparent dielectric layer over the conformal reflective layer, wherein the dielectric layer has a smoother upper surface than the bumpy organic insulating layer; and

a first transparent conductive layer over the transparent dielectric layer.

***(Emphasis added).*** Applicants assert that claims 1-13 patently define over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above.

In the present invention, each pixel portion of the liquid crystal display (LCD) according to the present invention comprises an organic insulating layer, a conformal reflective layer, a transparent dielectric layer and a first transparent conductive layer. The dielectric layer located over the conformal reflective layer **possesses an even upper surface** in touch with the first transparent conductive layer and the first transparent conductive layer is located over the transparent dielectric layer.

In the Office Action, the alignment layer 294 stated in Nakamura's application is functionally equal to the transparent dielectric layer of the present invention, and the Examiner also admitted that Nakamura's application fails to disclose a first transparent conductive layer over the transparent dielectric layer. The Office Action further stated that skill artisan would have a first transparent conductive layer as disclosed by Nakai over the transparent dielectric layer in Nakamura device. However, Applicants respectfully traverse this issue raised in the Office Action.

As shown in Exhibit A (the last paragraph on page 29) and Exhibit B (Fig. 1)

which are cited in previous response, it is obvious and well known in the art that **the alignment layer must be directly in contact with the liquid crystal layer** in order to control the direction of the liquid crystal molecules. Although the alignment layer 294 is made of transparent dielectric material, it cannot be denied the fact that Nakamura uses the alignment function of the alignment layer in his application. That is, people skilled in the art who refer to Nakamura's application will not just regard the alignment layer 294 as a simple transparent dielectric layer and will definitely regard the alignment layer 294 as a material layer with a feature to control the orientations of the liquid crystal molecules. Under this circumstance, the skilled artisans would not insert any material layer between the alignment layer 294 and the liquid crystal layer 299. Furthermore, Nakamura fails to teach or suggest that the alignment layer 294 can be a common transparent dielectric layer without possessing any orientation control ability. Further, Nakamura also fails to teach or suggest that the alignment layer 294 can be separated from the liquid crystal layer with a transparent conductive layer.

Even though Nakai discloses a transparent conductive layer over the dielectric layer, Nakamura fails to teach or suggest to do so. In 2143.01 in Manual of Patent Examining Procedure (MPEP), with respect to "Suggestion or Motivation To Modify the Reference", it states that "Fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness". Furthermore, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (also stated in 2143.01 in MPEP). There

must be some motivation to combine the references; this motivation must come from "the nature of the problem to be solved, the teachings of the prior art, [or] the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). "Particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." In re Kozab, 217 F.3d 1365, 1371 (Fed. Cir. 2000).

It is clear that Nakamura fails to teach or suggest that the alignment layer 294 is only used as a simple transparent dielectric layer and an additional transparent conductive layer can be formed over the alignment layer 294. Furthermore, people skilled in the art will not modified Nakamura's application by further forming a transparent conductive layer between the alignment layer 294 and the liquid crystal layer 299 to destroy the operation function of Nakamura's application. Therefore, applicants respectfully submit that there is no proper motivation for combining Nakamura with Nakai.

Moreover, as stated in 2143.01 in MPEP, with respect to "Suggestion or Motivation To Modify the Reference", if proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Still in the same chapter of MPEP, it is clearly statedthat "the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the

references are not sufficient to render the claims prima facie obvious" *In re Ratti*, 270 F.2d 810, 123 USPQ 349(CCPA 1959). That is, if people skilled in the art ignored the true function of the alignment layer 294 and merely regarded the alignment layer 294 as a simple transparent dielectric layer, the combination of Nakamura with Nakai as taught in the Office Action would lack the essential feature for controlling the orientations of the liquid crystal molecules. This kind of combination would ruin the principle operation of Nakamura's application.

Hence, Applicants respectfully submit that Nakamura in view of Nakai fails to render claim 1 unpatentable. Claims 2-7, 8-10 and 12-13, which depend from claim 1, are also patentable over Nakamura in view of Nakai, at least because of their dependency from an allowable base claim. Applicants respectfully assert that these claims are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectively requested.

*The Office Action also rejected claim 8 under under 35 U.S.C. 103(a), as being unpatentable over Nakamura and Nakai in view of Kim et al. (U.S. U.S. Patent No. 6,693,689; hereafter Kim). The Office Action further rejected claim 11 under under 35 U.S.C. 103(a), as being unpatentable over Nakamura and Nakai in view of Kubo et al. (U.S. U.S. Patent No. 6,819,379; hereafter Kubo).*

Since claims 8 and 11 are dependent claims which further define the invention recited in claim 1, Applicants respectfully assert that these claims also are in condition for allowance according to the same reasons as discussed above for the rejection 103. Thus, reconsideration and withdrawal of this rejection are respectively requested.

For at least the foregoing reasons, Applicants respectfully submit that independent claim 1 patently defines over the prior art references, and should be allowed. For at least the same reasons, dependent claims 2-13 patently define over the prior art as well.

Customer No.: 31561
Application No.: 10/065,091
Docket No.: 5486-US-PA

## CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-13 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date : March 10, 2006

Belinda Lee

Registration No.: 46,863

Jianq Chyun Intellectual Property Office
7th Floor-1, No. 100
Roosevelt Road, Section 2
Taipei, 100
Taiwan
Tel: 011-886-2-2369-2800
Fax: 011-886-2-2369-7233
Email: belinda@jcipgroup.com.tw
Usa@jcipgroup.com.tw